

What's Worse – The Pest, Or The Cure?

When It Comes To Small Hive Beetles, There Are No Easy Choices

Jennifer Berry



The average consumer is pretty naïve about where food comes from. Generally, we have no clue about how it's planted, grown, harvested, processed, packaged, transported and finally displayed in the grocery store. (Not that there's anything wrong with that.) It's understandable that most people just have more pressing issues in their lives than to occupy themselves with the process of how food gets to the table. But if consumers did know more, we might see some serious changes in how we produce food in this country such as more humane, organic, and free range options, to name a few.

When you talk to the experts they say it is unrealistic to think we could possibly feed the world with organic meats and produce, unless the population was dramatically lowered; which is not a good solution. However, demand for changes in the whole food chain are occurring and growing in popularity. Organic food is the fastest growing sector in the American food marketplace and is becoming more commonplace in grocery stores. Biodynamic agriculture, farmers' markets, food co-ops, organic farms, and sustainable farming are all on the rise. Localvore (one who consumes locally grown food), CSA (community supported agriculture), and CNG (certified naturally grown) are the newest buzzwords. These are all efforts to protect soil, water and wildlife while recycling resources, promoting ecological balance, and conserving biodiversity. And as a result, these measures help ensure that our food and our world are a bit less toxic.

Let's narrow the focus just a bit. Before you became a beekeeper (or interested in bees) did you know what went into making a pound of honey? Well, I didn't know squat, except that those cute little smiling bees on retail



packaging were responsible for filling honey bears and sweetening my life. That's about what the average honey consumer knows as well. Oh yes, we also know that bees sting, and that kids look absolutely adorable when dressed up in a fuzzy honey bee costume with that little stinger projecting out the back. "Isn't that just too cute, honey? Take a picture."

What was it about beekeeping that lured you in? Was it your love of honey that brought you into the fold, or do you just

like wearing white? If it was the honey, do you remember tasting "real" honey for the first time? Not the junk they sell in stores that's been imported from wherever, filled with whatever, and processed however. I'm talking about the stuff you eat right off your finger, directly out of the comb while working bees, or right out of a jar from the local beekeeper at the farmers market?

Once exposed to the rich, full flavor of pure honey, your "palate," as they say, changes forever. I've seen it time and time again. Whether it's a friend, family member, next door neighbor or stranger, once someone tastes the real stuff . . . they're hooked! And they keep coming back for more.

Some returnees do so because they have certain health issues, allergies for instance. They've heard that eating local honey can help lessen the symptoms. And, here in the southeast many people are miserable with allergies, especially during the spring months. Folks also seek out pollen since it's been promoted as the "perfect food;" it's consumed by the tons for nutritional or health reasons. Finally, beeswax is used for candles and skin products. People searching out these products usually are more health conscious, for whatever reason, than the normal consumer. So how would their perception change if they realized there are numerous chemicals in these bee products?

The use of chemicals in honey bee colonies has been a source of concern for some time, not only for beekeepers, but for researchers as well. In recent years, due to adoption of IPM, chemical use by backyard beekeepers has dropped dramatically. But most of us realize that there is a time and a place for chemical use. Look at our own bodies, for instance. We don't think twice about taking a pill if we become ill. Off to the doctor we go to get a prescription, then to the drug store to fill it, and finally home to take it. But aren't these very medications we're slipping into our own bodies chemicals as well? What would bees infested with mites choose if they were able: a strip of coumaphos, a dose of apistan, a dollop of amitraz, a dribble of acid, a wafer of thymol, a spoonful of sugar, or nothing at all?

Beekeeping today is not like the good ole days when our grandfathers kept bees. Prior to the 80's few chemicals, if any, were needed to keep colonies alive. Unfortunately, with the weight of current stresses on bees, including mites, diseases, and more recently small hive beetles, this is not the case anymore.

"Can we reduce the use of these pest control chemicals in our beehives?"

With yet another exotic pest being introduced to the U.S., beekeepers have been desperate for a control against small hive beetles (SHBs), especially in southern regions. SHBs can pose a problem to bee colonies just about anywhere, but nothing as compared to the Deep South. In my neck of the woods, beetles usually make their devastating march only after a colony has been compromised by other issues, such as mites, disease, queenlessness, etc. However, further to the south, beetles don't need an invitation to take over, they just do. Hence, controlling populations has become a priority in some operations. With coumaphos (Checkmite+[®]) having been approved for use in hives to control mites, it was quickly approved for dual use to control SHBs. However, numerous other techniques and concoctions have been tried and are used today . . . some illicitly.

One popular product used by beekeepers, which kills SHBs, is Maxforce Roach Killer Bait Gels or Maxforce FC Magnum. The bait was developed to kill ants and roaches in and around areas inhabited by people, but without causing them harm. The active ingredient is fipronil, a broad-spectrum insecticide. If you have cats or dogs, then you may recognize the trade name Frontline, which is used to control fleas. Fipronil is also widely used in other applications from inside to out. Inside, it is used in commercial and residential food processing areas. The benefit with this particular insecticide is that there's no need to cover food prep stations during treatment. Outside, it is commonly used for managing termites and pests in turf grass. However, fipronil is **very toxic** to honey bees and has NOT been approved for the use in honey bee colonies.

Here's some interesting information that comes directly from a website which sells Maxforce: "The active ingredient in Maxforce FC Magnum, Fipronil, provides a unique mode of action that works through both ingestion and contact, knocking down roaches and ants that eat or simply touch the bait. Either way, one contaminated roach or ant kills many others where they live and breed. The Domino Effect[®] still achieves population control, but with faster visible results. Maxforce FC Magnum roach bait gel is the newest bait from Maxforce by Bayer. It has the same great active ingredient (Fipronil) as the other Maxforce products. Only this time, you get five times the active ingredient, plus a new technology called ContactX[™] that kills roaches even when they just touch the bait. Other roaches touch or eat the dead roach and spread the bait again, controlling the entire colony, even the roaches you can't see." Controlling the entire colony . . . Hmmm?!?

Maxforce is applied to colonies in several different ways. One way is to inject the gel into corrugated plastic signage material. You know the ones. They pop up like mushrooms along roadsides and front lawns during cam-

paigns suggesting that you elect this candidate or that one. Another way of introducing this product is to squirt it into the center of a CD or DVD case and the beetles will enter through the small holes on the side. The idea behind these semi-closed systems is to draw the beetles in to partake of the bait where they hopefully will croak immediately, that is to say without exiting and re-entering the hive contaminated. If the beetle does die inside the trap, the chemical would be contained, never exposing the bees, wax, pollen or honey to the toxin: at least this is the assumption made by those applying the product. They rely on the idea that the fipronil is "quarantined" inside the trap and not spread around the colony. However, it seems this may not be the case.

Fipronil is a slow acting poison. When it's used in a beehive, an exposed pest is able to amble around before dying, either returning to its hiding place or continuing to feed on pollen or brood and the residues are spread everywhere they go. In addition, once the insect does die, if it is eaten by other beetles or their larvae, there are sufficient residuals left to kill those beetles as well. And the contamination process goes on and on.

Recent analysis of hundreds of wax and pollen samples has revealed unprecedented levels of miticides and agricultural pesticides. While fipronil was not in the top 10 most detected pesticides, it was detected in both wax and pollen. Those consistently detected as the top three were fluvalinate (Apistan[®]), coumaphos (Checkmite+[®]), and chlorpyrifos (Mullin et. al. 2010). The first two are beekeeper applied miticides used for controlling *varroa*. Chlorpyrifos (an organophosphate) was at one time one of the most common and widely-used household pesticides. Trade names you probably recognize are Lorsban and Dursban. But because of undesirable children's health issues, it was banned from homeowner use and severely restricted for use on crops; however it is still very prominent in the environment.

But what's worse, the pest or the cure? Our world is so inundated with man-made chemicals we would be hard pressed to find any food item free of toxins, including honey. They're in the air, the water, the soil, inside our homes, and our bodies. They're passed through the food chain from one organism to the next. But as we become more educated about the food we eat, I imagine we'll become even more selective. By being more selective we can at least limit some of what goes into our system, can't we? And maybe by restricting or reducing the use of chemicals in our bee colonies we can ultimately reduce the amount released into the environment, chemicals that would otherwise eventually find their way back to us. Listen to what some of your fellow beekeepers are saying. "It's been years since I've treated with anything, and the bees are still alive." At least for now!

See Ya! **BC**

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Reference:

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